

Remarks

The following remarks and appended amendments are submitted in response to the Office Action dated December 31, 2003.

Claim Rejections – 35 USC § 112

Claim 39 has been amended to replace the term "the video codec" with "a video codec" in order to provide antecedent basis.

Claim Rejections – 35 USC § 102

Reconsideration of the rejection of anticipation by O'Neil et al. (US Patent No. 6,404,745) is requested.

In rejecting claim 1, the Examiner refers to a section of the disclosure by O'Neil which describes how a multi-point control unit (MCU) generates video images for distribution to conference endpoints. The video image having the loudest voice levels is selected for broadcast. Such a system is also described in the background section of the present application.

In the system referred to in O'Neil, in order to select the endpoint which should be designated as the principal video broadcaster, the MCU receives video and audio signals from all of the participating endpoints and then makes a decision as to which video signal(s) should be distributed based on a comparison of voice levels. The video and audio signals from those endpoints which are not to be distributed are discarded in the final broadcast mix. While this leads to the same end result as the invention (in the sense that only a single signal or a small number of signals are chosen for redistribution), the present invention is significantly more conservative of bandwidth and of processor resources.

According to the present invention, a determination is first made as to which video signal(s) should be transmitted to the participants (based, for example, on a comparison of voice levels as described in O'Neil) and then the output of each endpoint is controlled in accordance with this decision.

Therefore, according to the present invention, if a particular endpoint is participating passively at any given moment (i.e. the user is not speaking and his video signal would normally therefore be discarded in the video broadcast mix), then the output from that endpoints can be controlled to switch off the video output until it is required. This reduces the overall bandwidth and the processing power required at the MCU.

As explained in the present application, systems such as that described by O'Neil et al. still require each endpoint to send full video and audio to the MCU (which consumes network bandwidth and processing power at the endpoints), and still require the MCU to receive, decode, identify and discard the video signals from every endpoint. It will be appreciated that this imposes a very large overhead on the IP stack and on the processor of the MCU.

None of the prior art has suggested that the output of participating endpoints should be controlled based on a determination as to how the output of each endpoint is to be ultimately utilized in the broadcast mix, and indeed none of the prior art systems discuss a dynamic switching on and off of the video output under the control of the MCU, which is a requirement to implement the present invention. Therefore it is respectfully requested that the Examiner reconsider the rejection of claim 1. The same arguments apply in respect of the rejections made over O'Neil against independent claims 20, 24 and 32, and each of the dependent claims.

Claims 25-29 and 31 were rejected for anticipation by Yan et al. (US Patent No. 5,623,312). Independent claims 25 and 28 have now been amended to more clearly highlight the feature that the video processing unit favors one or more of the video signals when generating the broadcast

video signal, and that the control unit operates (in conjunction with the broadcast unit) to control the video output of the endpoints selectively in accordance with the broadcast mix.

Yan et al disclose a multimedia conferencing system in which parameters of the video output such a bit rate and frame rate can be controlled by the MCU. This is not, however, for the purposes of reducing bandwidth or switching off the inactive video conferees at any point in time, but is rather to ensure that the signals can be correctly matched within a particular conference. In the system described by Yan et al, as in that described by O'Neil et al, it is envisaged that all of the endpoints transmit video all of the time and that the MCU processes and discards those signals which are not needed for the broadcast output.

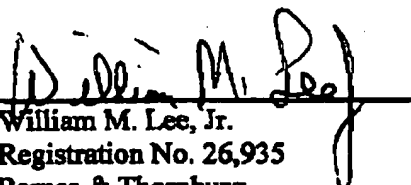
Claim Rejections – 35 USC § 103

As argued above, each of the dependent claims includes the features of the independent claim from which it depends. It is submitted that in view of the arguments submitted above over O'Neil et al. and Yan et al., the dependent claims are allowable.

Favorable reconsideration of the application is requested.

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Respectfully submitted,


 William M. Lee, Jr.
 Registration No. 26,935
 Barnes & Thornburg
 P.O. Box 2786
 Chicago, Illinois 60690-2786
 (312) 214-4800
 (312) 759-5646 (fax)